



*Department of Education - Integration Partner
FMS Upgrade to Oracle 8i Production Readiness Review*

Production Readiness Review (PRR)

Oracle 8i Upgrade Effort
FSA FMS
Integration Partner
December 20, 2002



Business Case

Oracle 8i Upgrade

FSA's Financial Management System (FMS) is currently at an Oracle database level of 8.0.5. An upgrade of the Oracle database to release 8i (8.1.7) will provide the following benefits:

- Improve DB performance (querying, reporting, etc.)
- Correction of bugs from previous 8.0.5 version
- Ability for FSA FMS to receive the highest level of support from Oracle when problems arise
- Preparation of back-end database for possible front-end upgrade to Oracle 11i.



Summary of Approach

Planning: This effort involved identifying the correct database level for upgrade suitable to FMS, and also identifying any prerequisites necessary before implementing the upgrade in an initial test environment. During this stage the FMS team found that there was one prerequisite: an upgrade of the Accounts Receivable module to level 11.0.AR.D. The FMS team thus included the AR patch upgrade with the 8i upgrade roll-out. The FMS team also created formal, front-end test scripts for all FMS functionality during this phase of the Approach.

Development: Development for this effort was minimal. Because the team did not roll out new functionality for this effort, development consisted primarily of two stages:

Stage 1: Migration, set-up, and configuration of the 8i upgrade and AR patch prerequisite by the DBA team in the appropriate testing environment.

Stage 2: Changes to custom code affected by the 8i upgrade or by the AR patch set. The necessity for any changes required became evident during the testing phase.

Back-end Testing: The DBA team conducted this initial phase of testing. All back-end database functionality of the application was examined to ensure integrity of the application's foundation.

Front-end Regression Testing: The FMS 8i Upgrade team performed a second, more rigorous phase of front-end application testing to ensure that the changes made to the environment after the upgrade did not affect any functionality. In the case that the upgrade did affect FMS functionality, the development team implemented code changes to accommodate the upgrade and maintain system capabilities.

Implementation and Deployment: This stage of work involves deploying the functionality and technology required to enable FMS to operate in an automated, efficient manner consistent with the functional and technical requirements.



Schedule Overview

- | | |
|--------------------------------|---------------------------------|
| • Project Kickoff | October 14, 2002 |
| • Planning Stage | October 14 – October 31, 2002 |
| • Test Script Preparation | October 21 – November 4, 2002 |
| • Initial Development | November 4 – November 6, 2002 |
| • Back-end Testing | November 6 – November 13, 2002 |
| • Front-end Test | November 25 – December 19, 2002 |
| • Final bug fixes, re-testing | December 13 – December 18, 2002 |
| • Test documentation wrap-up | December 13 – December 19, 2002 |
| • Production Readiness Review | December 20, 2002 |
| • Submission of change request | December 20, 2002 |
| • Deployment | December 28, 2002 |



Testing Summary

Back-end Testing: This phase of testing was led by Lorenzo Diez (DBA team). The team successfully implemented the upgrade and the AR patch set in the PDEV environment and found no issues with the back-end database and core foundation. At the end of this phase the DBA team migrated the upgrades to the INTCOM instance for front-end testing.

Front-end Testing: The 8i Testing team conducted this phase of work. Every FMS program, interface, and manual capability was fully tested to ensure that the environment remained stable with the upgrades. A total of sixteen incident reports were recorded, some of which (described in future slides) the upgrade was specifically responsible for; these incidents required changes to custom FMS code.

User Acceptance Test: The FMS team did not conduct any rounds of User Acceptance Test, as all interfaces and functionality remained the same with the upgrade to Oracle 8i.



Testing Summary

- During Back-End Testing zero issues were logged.
- Summary of Test Incidents logged during Front-End testing:

Test Phase	Open	Closed	Enhancement	Total
Front-End	0	15	0	15

- Conclusion: Team successfully completed back-end and front-end testing

Closed: Error has been resolved and retested

Open: Error has not been resolved

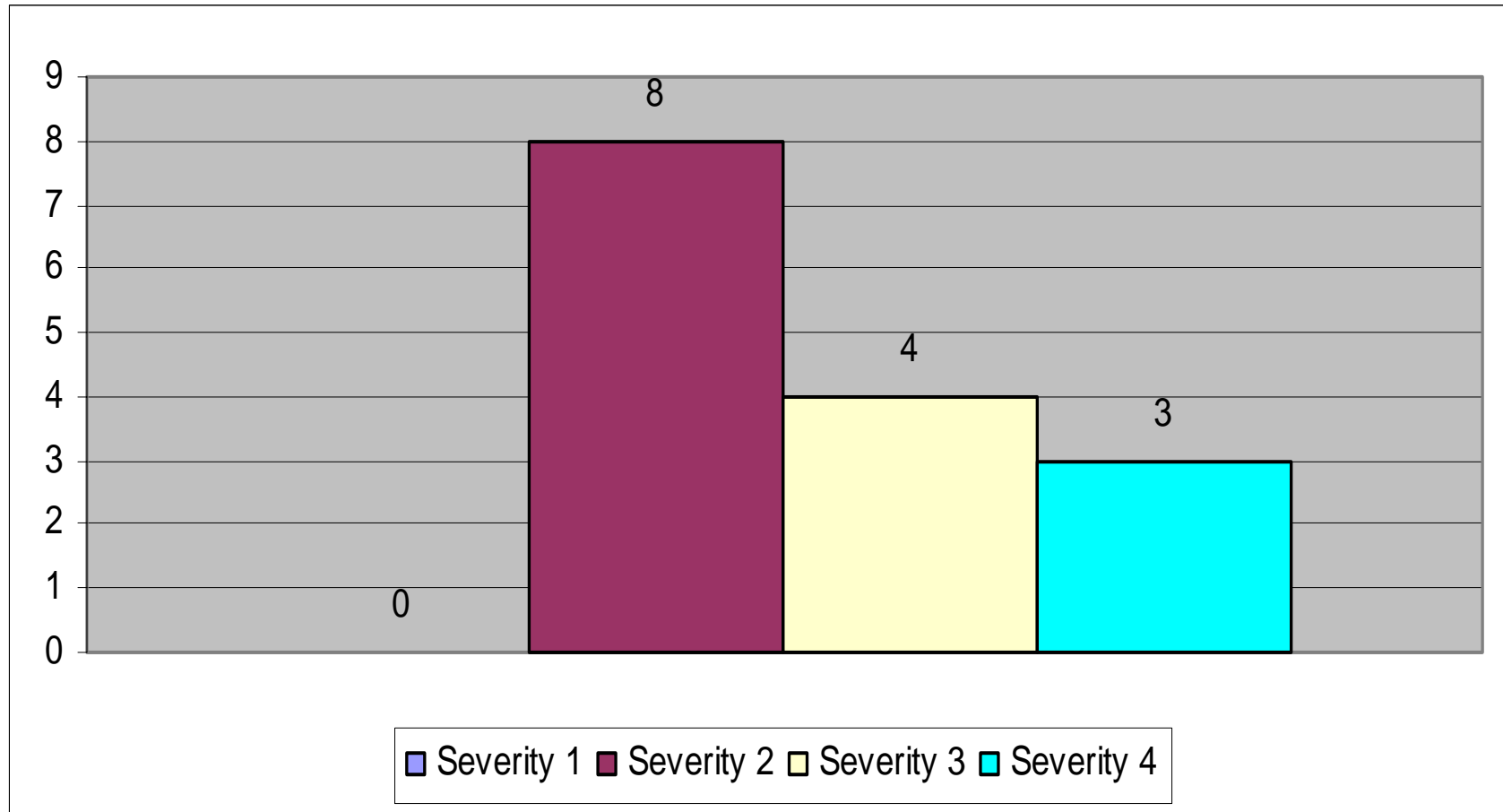
Enhancement: Feature executes correctly, but minor cosmetic changes needed

Client Clarification: Feature executes correctly, but required user clarification..



Testing Summary Continued

Front-End Application Test Incidents by Severity



Severity 1: Major Problem. System doesn't respond or crashes

Severity 2: Major feature halts. Incorrect results after execution.

Severity 3: Expectations of major feature not met. Workaround possible.

Severity 4: Feature executes correctly, but minor cosmetic changes needed.



Testing Summary Continued

- Current Open Integration SIRs
 - Upon the completion of back-end and front-end test, no incident reports remained open; all were resolved.
- Primary (Severity 2) 8i Upgrade & AR Patch – related incidents:
 - **SIR 1.5_001_Closed:** Summary table extract program: 8i throws an error when a cursor is defined using a “For Update” loop and a “Commit” is used after each record returned by the cursor, thus invalidating the cursor and returning the error message. Program stops completely. Code changes were made to resolve this issue: developers removed all “Commit” lines within these loops.
 - **SIR 1.7_001_Closed & SIR 1.7_002_Closed:** Splitter Process Program: “Commit” error (see SIR 1.5_001_Closed)



Testing Summary Continued

- **SIR 2.27_001_Closed:** FSA AR to GL Transfer Program: “Commit” error (see SIR 1.5_001_Closed).
- **SIR 3.16_001_Closed:** COD GL to GAPS Interface: 8i upgrade prohibited creation of some output files to GAPS due to alphanumeric/numeric data conversion errors. To resolve this issue, developers changed the custom code to accommodate the correct data type.
- **SIR 3.22_001_Closed:** Campus Based & LO, AP&GL to GAPS Interface: alphanumeric/numeric data conversion error (see SIR 3.16_001_Closed).



Testing Summary Continued

- **SIR 3.29_001_Closed:** FSA FMS DLOR GAPS File to LO Program: Program was unable to create an output file to LO feeder program due to alphanumeric/numeric data conversion error. To resolve this issue, developers changed the custom code to accommodate the correct data type.
- **SIR 3.3_001_Closed:** FSA FMS file to LC Feeder Program: alphanumeric/numeric data conversion error (see SIR 3.29_001_Closed).



Security

No changes were made to the existing FSA FMS security structure in terms of technical architecture. The upgrade to Oracle 8i did not affect the security of the system.

The FMS team did apply the upgrade to the extranet application for external users as well. Regression testing took place in this instance to ensure both the security and stability of the extranet post-upgrade. All scripts tested in this extranet environment passed successfully with no incidents.

Quality Assurance

Although the an external IV&V team did not consult on this upgrade effort, the FMS team maintained all practices previously implemented by IV&V and also remained consistent with Capability Maturity Model (CMM) Best Practices to:

- Ensure traceability of project documentation, and planning prior to implementation.
- Maintain formal, documented procedures for test progress and SIR closure.
- Provide list of PRR issues for Resolution upon completion of implementation.



Collaboration

Area	Responsible Party
VDC	Mike Healy
Applications Maintenance	Shirley Singleton
Help Desk Readiness	Shirley Singleton
FMS Technical Architecture	Steve Kuhl



Summary & Outstanding Issues

The following risks are diagnosed going forward with implementation:

- A Production environment sample of the OP (COD ACA Payment) transaction type was not tested in files entering FMS from COD. This transaction has not yet occurred in Production and only occurs two to three times a year. Once in FMS, this transaction turns into an OB and a PY transaction; OB and PY transactions were fully tested.
 - FMS is currently in the process of scheduling a test with COD for this transaction type. It is expected that this test will occur in early January and the first submission in Production of this transaction will not occur until February 22nd.
 - All other GAPS-related transaction types and all FMS functionalities were fully system-tested and passed successfully in the 8i environment with all final code changes in this environment.
- The 2002 Year End rollover activities must be completed prior to conducting the upgrade. These activities are currently scheduled to be completed the weekend of 12/20 to 12/22.